

ART. VI.—*On the Treatment of Deformities, following unsuccessfully treated Fractures.* By GEORGE W. NORRIS, M. D., one of the Surgeons to the Pennsylvania Hospital.

IRREGULARLY united fractures sometimes fall under the notice of the surgeon attended with so much shortening or deformity as to render the limb unsightly, painful, or altogether useless, and although the sufferers in such cases are generally eager for relief, yet the general practice has been, at least in this country and Great Britain, to abstain from any operative measures for the remedying of such states. Operations, however, have been often proposed and practised for the removal of vicious consolidations, and believing them to be frequently remediable, we think it well to call the attention of the profession to this interesting subject, by bringing to their notice the various methods by which it may be done, and recalling to memory the different numerous instances in which they have succeeded.

The means proposed for the removal of deformities following fractures are of three kinds. The first, consists in straightening a crooked limb by means of well applied pressure; the second, in re-fracturing the bone at the point of former injury in order by an after treatment to give it a better direction; and the third, in making a section of, or removing the projecting or angular portions of bone, which give rise to the deformity.

1. *Pressure and extension of the limb.* The researches of Duhamel, Breschet, Dupuytren, and others, upon the formation of callus, have proved beyond cavil the possibility of straightening deformed limbs at considerable intervals after the occurrence of fractures, by means of pressure, conjoined with extension and counter-extension. This method, however, is applicable only to those cases in which the callus has not yet acquired all the solidity of bone—an event, which, in the majority of cases does not occur till the fiftieth or sixtieth day. Dupuytren furnishes examples of limbs straightened by this method as late as the one hundred and twentieth day after the receipt of the injury, and fixes upon the sixtieth day as the medium time at which benefit is likely to be derived from it. In bringing about straightening of the limb, extension and counter-extension is to be employed in the same manner as in cases of recent fracture, the limb being drawn down with some force every second or third day, care being taken at the same time to keep, by means of the extending apparatus, what is gained by these forcible efforts.

Sometimes, however, when the callus is very yielding, the parts may be dragged at once to a better position, and so retained, though generally the contracted state of the muscles accompanying these cases, prevents this being done.

Extension and pressure made with the aid of machinery, have also been successfully applied to the remedying of these, as of other deformities, and

sometimes with marked success. An instance of this is related in the Transactions of the Medical Society of Lyons, by M. Desgranges. The case was that of a female, who being badly treated in a chirurgical point of view after a fracture of the leg, found the limb at the end of four months, so crooked that she was obliged to walk on the exterior edge of the foot. M. D. undertook to remedy this defect, and by means of a machine, making well applied pressure on the protuberant angle of the fracture, obtained perfect rectitude of the leg.

2. *Rupture of the Callus.*—Among the ancients, some of the surgical writers of authority recommended and practised in these cases, the rupturing of newly consolidated bones, while others strenuously opposed it. In modern times, the practice was revived by Cesterlen, and has received countenance from practitioners of eminence on the continent of Europe; Richerand, Dupuytren, Velpeau, and many others, admitting of its employment in certain extreme cases. Such being the case, it will be well to examine its claims to attention, and cast a retrospective glance at the judgments passed upon the method by the recognised authorities in our science, as well for the purpose of exposing its dangers, as of learning the benefits which in some cases may be derived from it.

The earlier of the ancient writers who recommended the rupturing of the callus, produced it by means of blows with a hammer or other similar means, the member being previously covered, and protected, to prevent injury to the soft parts, and when done in this manner, we can well conceive that it would be likely to be followed with serious consequences. Rhazes, who particularly noticed this practice among the surgeons of his time, boldly opposed it, urging the danger of fracturing the bone elsewhere than at the seat of previous injury, and recommended the adoption of emollient applications, with pressure and extension in lieu of it. Haly Abbas speaks of an old man with a deformity following the consolidation of a fractured thigh, who died from the effects of the rupturing operation.

Guy de Chauliac, in cases where the callus was not older than six months, recommends to break the bone again at the same point with the knee, after having used emollient and relaxing applications, and afterwards treating it as a recent fracture.

Ambrose Paré speaks of the operation only to condemn it, except in cases where the callus is still soft, and the extremity so much deformed, as to hinder the patient from using it, and even in these instances, before proceeding to the straightening of the limb, he advises the softening of the new growth by means of plasters and emollients, for fear of breaking the bone at some other point than that at which it had first given way.

Fabricius Hildanus rejects the operation, affirming at the same time that neither Hippocrates nor Galen practised it, and supports his opinion against its employment by the experience of Paré, Jessen, Guy de Chauliac, Albusasis and Avicenna, all of whom were opposed to the forcible rupturing of the bones after firm union.

Purmann* recommends relaxing applications when the arm or leg present deformities which are not of long duration, and afterwards extension of the member by means of certain instruments, as the glosso-comium. But if the callus had already attained perfect firmness, after the use of the same topical applications, he advises rupturing of the bones at the point of previous fracture by means of a machine worked by a screw, which is accurately described by him. Passing over the opinions of many esteemed writers, though of less authority on the particular subject of which we are treating than those we have just quoted, it may be well to dwell for a few minutes on those of some of the authors who have written upon the subject nearer to our own times.

Morgagni speaks of the operation of rupturing the callus and straightening the limb, as having to his knowledge succeeded in some cases, but at the same time adds, that an instance was known to him, in which the same operation upon the leg was followed by death. Duverney, who in an especial manner studied the injuries to which the bones are liable, remarks, that deformity after fractures "has determined many to the expedient of breaking the thigh anew, in order to remedy it. But this operation has been unsuccessful, nay on the contrary even, they have been in a worse state than otherwise they would have been in." (Trans. by Ingham, p. 137.)

In a work in our own language which is deserving of more frequent reference than it now receives, we find the following.

"The crooked limb left after a fracture is very common, and admit the callus has been a month, but especially of a longer date, I see little likelihood of remedy. The breaking asunder forcibly the new cement at these times has, I think, but rarely answered. Nor are we sure, after this second rupture, of success. From the larger bones, as of the leg, but particularly of the thigh, thus served to gratify some more nice than prudent people, I have known *abscesses* arise, and the *fracture*, before *simple*, now made *compound*, by a new afflux of humours; at length *rigors* and *convulsions* have ensued, and carried off the patient"—"others, though with less of hazard to their lives, I have known far little better as to the straightness of their limbs; and some, after the pain they have hereby undergone, have been left worse than before." (Turner, vol. 2, p. 189, 90, 2d. ed. Lond. 1725.) Heister,† however, thinks that "when the callus is tender, and the patient young and vigorous, the operation may be fairly attempted," but nevertheless hints, that if the deformity and hindrance from the fracture are but slight, it is better to avoid the operation, as it is neither free from pain nor danger.

To rupture the callus, Oesterlen employed a complicated machine modified from those of Purmann and Bosch, the principle of which consists in hav-

* Oesterlen, *Sur la Rupture du Cal.* p. 18.

† Epist. 56, p. 154; vol. 9, Svo. Paris, 1824.

‡ *System of Surgery*, p. 117. London, 1743.

ing a pad attached to a piece of plank which by means of screws is made to descend gradually, and press upon the convex surface of the callus, the deformed limb having been previously fixed upon another padded plank to which they are attached. A sketch of this machine is figured in his work, but all that is sufficient where this process is adopted, is, to fix the limb to be operated on upon a firm mattress or table, while at the same time pressure is made *suddenly* and firmly by means of the hands, or knee, of the surgeon. A number of facts collected by Gesterlen from the older writers, as well as those given by him as occurring either in his own practice, that of Bosch, or of other surgeons of his country, clearly show that the fracture following the rupture of the callus is generally exempt from contusion, or other serious complication, and that it may be cured as readily as an ordinary simple fracture. Setting aside, however, the statement of the acknowledged advocate of this mode of practice, facts will at once present themselves to the mind of every surgeon to show the facility with which the callus of broken bones may be fractured, and the little danger attendant upon its rupture, previous to the deposite of that substance in its definitive form, that is, previous to the lapse of four or five months, as well as to prove that bones recently consolidated give way more easily at the first point of injury, than elsewhere. These facts are not unfrequently witnessed by patients refracturing their limbs by falls, a considerable time after convalescence from previous like injuries, in whom, although in some cases produced by great violence, and accompanied with much contusion, we find consolidation to proceed as regularly as after their first fracture.

In considering the propriety of straightening or rupturing the callus, it becomes interesting to inquire into the degree of force requisite to produce it. M. Jacquemin in his Thesis,^{*} which is understood to embody the views of Dupuytren on this subject, has endeavoured to represent by weights the force necessary to break the callus in its different periods, and the result of his experiments are in the highest degree interesting, as showing, that at a period when the fractured limb is ordinarily removed from the retentive apparatus, rupture of the callus will occur upon the application of a moderate degree of force.

The short end of a femur which was surrounded by a regular callus, taken from an adult on the 45th day after a fracture, was fixed horizontally upon a table in such a way that the callus projected from it; a scale beam being attached to the extremity in which weights were gradually placed. At 56 pounds the part bent without tearing, and at the 60th pound, the callus was completely ruptured. In a second experiment a callus of 59 days was torn off at the 56th pound.[†]

* No. 140. Paris, 1822, quoted from Laugier's Thesis.

† [From the manner in which these experiments seem to have been tried, the *weight* does not represent the *force*. The bone was arranged as a lever, and the weight acted with advantage.—*Ed.*]

Previous to the appearance of M. Jacquemin's work, Bosch and Cestrelen had experimented upon bones after fracture in a somewhat similar way, and conclusively proved that the callus even when more ancient than in the experiments already cited, gave way upon the application of force sooner than the original bone.

The leg of an ox, three years old, which had become firmly consolidated after fracture that had occurred 28 weeks previously with shortening of the limb to the extent of an inch and a half, was fixed by its extremities on two pieces of plank; the screw of a jack was then applied on the convex surface of the callus, which was fractured by a few turns of its handle without the production of splinters. The bone of the opposite leg, treated in the same way, required the application of much more force to produce its fracture.

The thigh of a goat of two years old, which had been fractured fifteen months and a half previously, and become firmly consolidated with deformity, was submitted to the action of Cestrelen's machine, and after a few turns of the screw the callus was fractured transversely in its middle. In a third experiment the humerus of a woman, aged 81, which was firmly united six weeks after its fracture, was fixed upon two blocks at a little distance one from the other, the callus projecting between them, and by pressure made with a round stick held in the hands of the operator, a clean fracture of the callus was produced.

Besides these direct experiments upon the callus, numerous observations of the accidental rupture of bones united after fracture might be adduced, to show that for a length of time after consolidation of the original injury, rupture of the callus is feasible, is generally cured promptly, and has been often followed by marked benefit to the patient.

The possibility of straightening or of rupturing the callus after its deposit being admitted, a question arises as to whether or not it should be preceded by any preparatory local treatment, with the view of producing softening of this substance. Nearly all of the older writers recommend the use of fomentations, cataplasms, ointments, mercurial plasters, or warm bathing, with a view not only to their relaxing effects upon the soft parts, but also for those upon the callus, which they believed to become more supple, and apt to give way more easily after their employment. Of these applications, the moderns have found some to be altogether without value, while others of them have been thought by practitioners of note to merit the notice claimed for them in certain stages of the formation of callus. According to Duhamel, the use of douche baths produces such powerful effects in mollifying recently deposited callus, as to bring about, if often repeated, the complete separation of the fractured fragments. Richter asserts the repeated use of warm baths to be a powerful means of softening the callus of firmly consolidated fractures, particularly in those of rather advanced age, and Brieske* and other

* *Gazette Médicale*, June 8, 1839.

writers, affirm the use of the mineral waters of Carlsbad and Barège, to produce in a remarkable degree softening of this substance. Dupuytren, too, whose practical judgment and close observation of facts must be unquestioned by all, was fully persuaded of their good effects, and never attempted the straightening of a deformed callus in the lower limbs, without enveloping the part for several days previously in emollient cataplasms, and strictly enjoining the use of local baths—so firm indeed was his conviction in the efficacy of bathing for this purpose, that M. Laugier* affirms, that for fear of producing this effect he has often refused to allow baths to his patients, who were convalescing after fractures. These means, however, can be of avail only before the deposite of the definitive callus, and must be more useful the nearer we approach the period of original injury, and it would be evidently improper to delay for any length of time an attempt to rectify a bad position of a limb in order to make trial of them, where a comparatively long period had already elapsed from the occurrence of the accident.

It is a matter of much importance to determine accurately the cases to which re-fracture of the limb is applicable—more particularly the precise degree of deformity demanding it, and the lapse of time after which it would be proper to undertake the operation. The recorded cases of the operation have been most generally in young and robust subjects where the callus was still recent, and where the deformity was either considerable, or interfered more or less with the use of the member. The procedure however, is not adapted to all cases of irregularly united bones. It is only where an angular deformity exists, arising from the union of the fragments by their extremities, that rupture of the uniting medium can be attempted with any good prospect of success. Where there is shortening of the extremity from the ends of the bones slipping past each other, even supposing that the rupture could be effected, union in the majority of cases would not follow in consequence of the extremities having become rounded and smooth.

The observations of rupture of the callus, detailed in the work of Cesterlen, either by the hand alone, or with the aid of a machine, amount to seventeen in number, of which, ten were in the femur, five upon the leg, and two on the arm, in none of which did any very severe symptoms follow the operation. Seven of these seventeen cases were in children, and ten in adults. The greatest length of time which had elapsed between the period of fracture and that of the operation, was six months, the shortest time, one month. The longest period required for the cure after rupture, was twenty weeks, the shortest period, four weeks, and in most of the cases operated on, very considerable deformity and shortening are stated to have been present. In no case did union fail to take place after it, and in all, great benefit is reported to have followed it.

In the *Gazette Médicale* for 1840, three cases are detailed by Mr. Pfuger, which go to confirm completely the statements made by Cester-

* *Des Cals Difformes, Thèse.* Paris, 1841, p. 41.

len. The first, was the case of a man *ætat.* 64, who fractured his leg, and who, in consequence of bad treatment was unable afterwards to walk without crutches. The patient desired to have the leg broken over, which operation was done by M. Bosch, after the method of Cesterlen; it had perfect success, and ten weeks after the new fracture, the patient could walk well, having but slight shortening.

The second case was that of a boy *ætat.* 16, with a fracture of the femur in its middle part. Consolidation had taken place with the fragments crossing each other, with inclination of the inferior end outwards and forwards, and shortening to the extent of eleven centimetres; artificial rupture was practised, and extension afterwards made use of. In two months, consolidation was perfect, the two members being of equal length.

The third case, was a youth *ætat.* 17, with fractured femur, the fragments of which had united at a considerable angle. The limb was shortened 8 centimetres, and the patient scarcely able to touch the ground with the point of his toes. Eighteen weeks after the accident, Dr. Gruel ruptured the callus with the machine of Cesterlen. Extension was afterwards made upon the limb, and at the end of three months the patient was moving about on crutches, with a shortening of only six millimetres.

M. A. Thierry has very recently recorded (*l'Expérience, Nov. 1841*) the case of a fractured radius which was straightened by rupturing the callus, after perfect consolidation attended with much deformity.

According to Velpeau,* M. Jacquemin proves that the dangers of artificial rupture have been singularly exaggerated, and he himself thinks it shown beyond question, that bones newly consolidated are more easily fractured at the point of primitive injury than elsewhere, and holds as a general rule, that the second fracture becomes consolidated more easily and promptly than the primitive one. He would limit us, however, to three months, for attempts upon limbs presenting simple shortening from the fragments passing each other, though he looks upon efforts to rupture angular deformities, always allowable, however long the period which may have elapsed since consolidation has occurred.

Though generally unattended with dangerous consequences, yet still it is well to recollect that these have occasionally followed rupturing of the callus. Haly Abbas, as already mentioned, relates that in an old man of 70 years of age, where a re-fracture was made to remedy a deformed thigh, death occurred from the effects of the operation. Morgagni gives a like instance, and Langer asserts,† that a similar result has been recently observed in Germany. The callus in this case was of nine months duration, and the femur the seat of the injury; the re-fracture was produced by strong extension made with the pulleys, and death followed an hour and a half after the operation.

The treatment after re-fracture of a bone in no way differs from that

* Médecine Opératoire, 2d. Ed., 1839, Tom. 1.

† Loc. Cit. p. 62.

usually employed in ordinary solutions of continuity of the bony fibre. If possible, the limb should be at once stretched to its proper length, or at any rate brought into a good position, and so retained by means of an appropriate apparatus, till the consolidation is effected, care being taken where much shortening has existed, to make the extension in such a way as not to provoke severe inflammatory action.

3. *Resection.*—In cases where objection has been made to rupture of the callus, where this is impossible to attain by the application of a safe degree of force, or where the deformity is of very long standing, and the union has taken place at any considerable angle, division, or resection of a portion of the bone, has in numerous instances been performed, and followed with successful results. As these operations do not appear to have received the attention which they merit, the following abstract of them, embracing most of those to be found recorded, is given.

Resection of a projecting portion of the femur, following a badly set fracture, is reported to have been successfully practised in 1521, upon the famous Jesuit, Ignatius de Loyola, then aged 28 years.

Gardiel, the translator of Hippocrates, relates in that work, that in the ease of his own nephew, a like resection was performed on the bones of the forearm, and that the operation was perfectly successful.

Wasserfuhr, of Stettin, (*Lancet*, vol. 1, 1828-9, p. 521, from *Rust's Magazin*), in 1816, separated and resected the femur, in a child aged five years, to remedy an angular deformity of that bone above its middle part, following a badly set fracture. The fractured bone was consolidated in such a manner as to form nearly a right angle, and the limb was shortened to the extent of twelve fingers breadth. The operation was difficult, and followed by severe symptoms, but the patient recovered. We must here remark, that though successful, we do not think any similar operation to be either called for, or ever justifiable in a child of five years.

Riecke, in 1827, (*Archives Générales*, September 1828,) in a patient aged 20, with a badly united fracture of the femur—the limb being shortened nearly a foot—incised the soft parts from the great trochanter to the external condyle, divided the callus with a saw, and afterwards removed the end of the superior fragment of the bone. A perfect cure was obtained in eight months, the member having been restored by permanent extension to nearly its natural length.

M. Clémot,* surgeon in chief of the marine at Rochefort, has, in two instances, resected portions of the femur, in order to remove great deformities resulting from badly treated fractures. The first ease was in a child in whom the treatment by extension, though persisted in for several months, had failed. The operation was done in December, 1834. A longitudinal incision, two inches in length, was made over the callus, and the bony angle

* *Arch. Générales*. 2me sér Tom. ii, p. 235.

fairly exposed. The fragments had united at an angle of about 112 degrees. Spatulas were placed beneath the bone in opposite directions, in order to protect the soft parts, and the angular projection protruded. With a small saw, a section perpendicular to the axis of the superior fragment was made, including but two-thirds of its thickness. A like section was then made for the inferior fragment. The loss of substance was not great, and was at the expense of the callus. The limb was then placed in a good position, and the fragments maintained in apposition. Seventy days after the operation the child was removed to Bordeaux, having the limb straightened and lengthened.

The second case, was that of a husbandman, ætat. 27, who fourteen months and a half previous to the operation, had met with a fracture of the left thigh, a little above its middle. After the cure, the femur remained deformed, and bent to an angle of 130 degrees—the summit of this appearing at the external and anterior part. The limb was shortened five inches; the leg and the foot carried inwards, and the patient unable to walk. The callus was perfectly firm. Resection of the angular projection was made in February, 1835, and the limb afterwards placed on the double inclined plane. Seventy days after the operation, the inclined plane was removed, the leg and thigh being still kept in a state of semi-flexion, and but slight motion allowed. The date of his discharge is not mentioned, though it is stated that he was able to support the weight of his body on the limb, and had a lameness scarcely perceptible.

In a case of deformity after a fractured leg, in which the sharp edge of the tibia projected against the skin, so as to occasion much pain and deformity, and considerable difficulty in setting the foot against the ground, Mr. Dunn of Scarborough, (*Medical-Chirurgical Transactions*, vol. xii, p. 181,) in 1821, made a semilunar incision of the integuments, turned them backwards, and with Hey's saw amputated the sharp angle of the bone. The leg by this course was made much straighter, and the patient afterwards walked well.

In 1827, a case fell under the notice of Mr. Duncan, (*Lancet*, 1827-8, vol. i. p. 25,) in which a fragment of the femur of a man aged 22, projected outwardly, at a point above the middle of the thigh, to so great a degree that it seemed scarcely covered by soft parts, and formed with the other portion of the bone nearly a right angle. This deformity had followed the treatment of a compound fracture of the thigh received a year previously, and almost entirely prevented the man from walking. Mr. D. after exposing this projecting piece of bone, which was externally sharp, and nearly an inch and a half in length, cut it off with a large pair of bone pliers. The edges of the wound united by the first intention, and the patient did well.

In 1823, Dr. Warren of Boston (communicated to author by Dr. J. Mason Warren) sawed out a cuneiform fragment of the tibia at its most prominent part, in a case of deformity following a fracture which had occurred

nine months previously at sea. The patient was 22 years old, and the leg was greatly curved inwards. After removal of the wedge, the base of which was two inches in length, the fibula was broken by manual force, and the parts straightened and secured by splints. The union was perfected in four weeks.

Dr. Parry of Indiana, (*Am. Journ. of Med. Sci.* vol. ix. 1839,) in a young subject, who had met with a fractured leg two years before, which had been suffered to unite at an angle almost equal to a right angle, in 1838 exposed the bones, and sawed a little cuneiform block out of the angle of each; in a little more than two months after the patient was discharged cured, the leg being straightened, and increased three inches in length.

Mr. Key, in October, 1838, (*Guy's Hospital Reports*, April, 1839,) performed a similar operation upon a gentleman who met with a fracture of the tibia, in August 1835. The shortening occasioned by the deformity in this case was such as to cause the patient to walk on his toes, the heel being raised an inch and a half, when he stood upright. The tibia was divided on the 14th of October, and by the 18th of January following, the bone had firmly united. The limb having acquired a good position, and appearing but little less than its fellow.

Professor Portal, of Palermo, (*Am. Journ. of Med. Sci.* vol. iii. N. S. 1842,) has also operated successfully on two like cases. The first was in a patient aged 32, in whom a fracture of both bones of the leg, near their middle, had united in an irregular manner. An incision was made over the angular projection, and about an inch of the bone removed by the chain saw. The limb was then carefully extended, and a cure procured in forty-eight days, the wound having united by the first intention. Very little shortening occurred.

The second case, was that of a woman in whom the fractured ends of the femur had united so as to form an angle at the point of union. The ends of the bone were cut down on, and an inch and a half removed from the upper fragment, after which half an inch was sawn off from the lower. The limb was maintained in a state of permanent extension. Fifty-five days afterwards she was dismissed cured, with the limb perfectly serviceable, though shortened to the extent of two finger-breadths.

In 1839, a boy aged fourteen years, fell under the notice of Dr. Stevens, (communicated in a letter from Dr. Watson of New York,) in whom the leg had been fractured eight years previously, and had been suffered to unite in such a way that its lower part was bent inwards and backwards, nearly at right angles with the upper. For the purpose of remedying this deformity, Dr. S. after exposing the bones, sawed out a wedge-shaped piece from the angle of the tibia, and another from that in the fibula, and then after a subcutaneous division of the tendo-achillis, straightened the leg and brought the bones into careful apposition. The case was subsequently treated as one of compound fracture, at first by Amesbury's apparatus, and afterwards by the

starched bandage. Notwithstanding every attention, however, union failed to occur, and about a year after the attempt to straighten the limb had been made, amputation became necessary, and was successfully done by Dr. Watson.

In a patient 23 years of age, affected with a deformed and shortened leg consequent upon an unsuccessfully treated fracture, received ten months previously, Dr. Thomas D. Mütter (*Am. Journ. of Med. Sci.* vol. iii. N. S. 1842,) resected the extremities of the bones with success; the patient walking without difficulty eight months after the operation.

In 1841 Dr. J. R. Barton (*Medical Examiner*, No. 2, 1842) operated for the relief of deformity of the leg following a fracture. In this case, the extremity of the upper fragment of the tibia projected inwards, overlapping the lower one about half an inch, and the limb besides being shortened and deformed, was weakened, and the footing of the patient rendered uncertain, the whole foot being thrown outwards. The parts being exposed, the extreme ends of the bone were sawn off, and the transverse bridges which connected the tibia and fibula together, were removed by the chisel and bone nippers, and the fragments brought into perfect coaptation, and so retained. By the end of the fourth week, bony union was so far advanced as to admit of the limb being rolled about the pillow, and on the fortieth day, he arose from his bed, with a straight and sound limb.

After the cure of fractures, points of new bone are at times thrown out in such a way as either to give rise to much suffering, or prevent proper motion in the joints, and in these cases operative measures have been resorted to for their cure. Mr. Alcock (*Medico-Chirurg. Transactions*, vol. xxiii. p. 315) relates the case of a gentleman who in 1835, was thrown from a gig, and fractured the upper third of the ulna into the elbow joint. Considerable swelling supervened, and the fracture was not discovered until some union had taken place, and that at such an angle that a sharp peak projected at the posterior surface, rendering any attempt at flexion painful in the extreme, from the stretching of the skin over the sharp end of bone. Gentle passive motion and friction had been adopted, but the time had arrived, Mr. A. believed, when more force was required, and no perceptible advantage could be gained without it. This opinion was founded upon the diagnosis, that mere ligamentous bands, uniting the fragments at an angle, prevented the flexion of the arm, and that it required regulated, but considerable force, to elongate these, and before it could be attempted removal of the projecting sharp end of the bone was necessary. Sir A. Cooper concurring in this view of the case, the projecting end of the bone was removed, and as soon as the wound was healed, a moderate degree of forcible extension was employed. The case rapidly improved, and he recovered the perfect use of the part.

A nearly similar operation was done with success, at the urgent request of the patient, upon a female at La Charité, by M. Velpeau, (*Méd. Opérat.*

2me Ed. Tom. 2, p. 559,) and a like method is said to have been employed upon the femur in England, by Mr. Dawson, with a happy result.

ART. VII.—*Two cases of Black Vomit, with Observations.* By RICHARD D. ARNOLD, M. D., of Savannah.

A RECORD of the two following cases may not prove uninteresting to the medical men of the north, as at least adding to the *facts* in relation to yellow fever or black vomit.

The first case was that of a lad named Seale, who arrived at Savannah from Demerara, in March 1841. I was at that time Health Officer of the port of Savannah; and, as my mind had been long made up as to the non-contagion of this disease, after my official visit to the ship in which he came, I directed the master of the vessel to send him up to the Savannah Poor House and Hospital and Marine Hospital, of which institution I am the senior physician, and where he came under my care.

I shall now copy the case as it stands recorded in my note book.

March 30th, 1841.—Entered this afternoon, a boy, named Seale, *æt. 17*, English by birth, arrived yesterday, from Demerara, after a passage of eighteen days. When eleven days out was taken sick; several of the crew were taken sick, and one died just before reaching this port.

As far as can be gathered from him, was seized first with pain in the back and loins, and cephalgia. Has been treated with salts, calomel, and jalap, and has taken four pills at four different times (no doubt drastic, as each one purged). Yesterday took ten grains of calomel and flaxseed tea.

Present Condition.—Skin little above natural temperature; pulse quick, frequent, 100. *Sensibility in epigastric region very acute*, he crying out upon the bare weight of the hand being placed upon it.

He ejects, by belching up from stomach, a matter of a coffee-ground appearance, of a peculiar sour smell, sticking to the sides of the vessel, *and offering not a single trace of bile.* Tongue has a whitish fur, but is by no means remarkable. I pronounce the case to be one of black vomit.

Treatment.—Blister 8x10 to epigastrium; R.—Calomel, grs. xii; opium, gr. i.—M. divide in six powders, one every two hours. A tablespoonful of soda water every two hours.

March 31.—Patient says he feels easier this morning, complains of nothing but weakness when he rises. Upon close examination says he has a pain in his back, extending from shoulder blade to pelvis, and that his head aches; tongue is rather pointed, and red at edges. Inside of lips red, and appears as if blood was exuding. Blackish brown fur at base, slight yellow